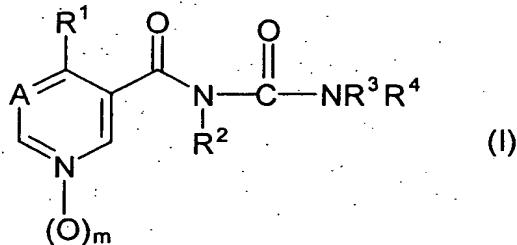


Claims:

BCS 03-1027

1. A process for preparing N-disubstituted N'-[4-haloalkylpyri(mi)dinyl]carbonyl ureas of the formula (I),



5

where

A is CH or N;

R¹ is (C<sub>1</sub>-C<sub>4</sub>)-haloalkyl;

R² is H or M;

10 M is an organic or inorganic cation;

R³ is (C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>6</sub>)-alkenyl, (C<sub>3</sub>-C<sub>6</sub>)-alkynyl, (C<sub>1</sub>-C<sub>8</sub>)-alkoxy, (C<sub>3</sub>-C<sub>6</sub>)-alkenyloxy, (C<sub>3</sub>-C<sub>6</sub>)-alkynyoxy, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl-(C<sub>1</sub>-C<sub>6</sub>)-alkyl, O-CH<sub>2</sub>-(C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, where the last nine groups mentioned are unsubstituted or substituted by one or more R⁵15 R⁶ radicals, or is aryl, heterocyclyl, aryloxy, heterocyclyloxy, -CH<sub>2</sub>-aryl, -O-CH<sub>2</sub>-aryl, -CH<sub>2</sub>-heterocyclyl, -O-CH<sub>2</sub>-heterocyclyl, where the last eight radicals mentioned are unsubstituted or substituted by one or more R⁶ radicals;20 R⁴ is (C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>6</sub>)-alkenyl, (C<sub>3</sub>-C<sub>6</sub>)-alkynyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl-(C<sub>1</sub>-C<sub>6</sub>)-alkyl, where the last five groups mentioned are unsubstituted or substituted by one or more R⁵ radicals, or is aryl, heterocyclyl, -CH<sub>2</sub>-aryl, -CH<sub>2</sub>-heterocyclyl, where the last four groups mentioned are unsubstituted or substituted by one or more R⁶ radicals;

or

5  $R^3$  and  $R^4$  together with the adjacent N atom form a 3 - 8 membered saturated, unsaturated or aromatic heterocyclic ring which optionally comprises up to three further heteroatoms from the group of N, S and O and which is unsubstituted or substituted by one or more ( $C_1$ - $C_6$ )-alkyl, ( $C_1$ - $C_6$ )-haloalkyl or  $R^5$  radicals;

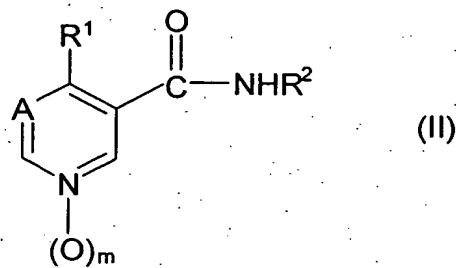
10  $R^5$  is halogen, ( $C_1$ - $C_6$ )-alkoxy, ( $C_1$ - $C_6$ )-haloalkoxy,  $S(O)_n$ -( $C_1$ - $C_6$ )-alkyl,  $S(O)_n$ -( $C_1$ - $C_6$ )-haloalkyl, CN,  $COO(C_1$ - $C_6)$ -alkyl,  $NO_2$ ,  $N[(C_1$ - $C_6)$ -alkyl] $_2$ , phenoxy, unsubstituted or substituted by one or more radicals from the group of ( $C_1$ - $C_6$ )-alkyl, ( $C_1$ - $C_6$ )-haloalkyl and halogen;

15  $R^6$  is  $R^5$ , ( $C_1$ - $C_6$ )-alkyl, ( $C_1$ - $C_6$ )-haloalkyl;

$m$  is 0 or 1, and

$n$  is 0, 1 or 2,

15 by reacting a 4-haloalkylpyri(mi)dinylcarboxamide of the formula (II),

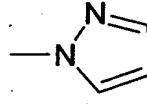
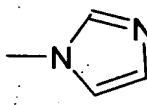


in which A,  $R^1$ ,  $R^2$  and m have the meaning indicated for formula (I),

20 in the presence of a base with a compound of the formula (III),



in which

X is  or  or  $-\text{O}-\text{R}^7$ ;  
 R<sup>7</sup> is unsubstituted or mono- or polyhalo, preferably F and/or Cl, -substituted (C<sub>1</sub>-C<sub>6</sub>)-alkyl or (C<sub>3</sub>-C<sub>6</sub>)-alkenyl, phenyl or benzyl, particularly preferably CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, i-C<sub>3</sub>H<sub>7</sub>, -CH<sub>2</sub>-CH=CH<sub>2</sub>, -CH<sub>2</sub>-CF<sub>3</sub>, CH<sub>2</sub>-CF<sub>2</sub>-CF<sub>2</sub>H, CCl<sub>3</sub>, phenyl or benzyl, in particular CH<sub>3</sub> or C<sub>2</sub>H<sub>5</sub>.  
 5 R<sup>3</sup>, R<sup>4</sup> have the meanings indicated for formula (I).

2. The process as claimed in claim 1, where the symbols and indices in the formulae (I) have the following meanings:

10 A is CH;  
 R<sup>1</sup> is CF<sub>3</sub>;  
 R<sup>2</sup> is M or H;  
 M is Li, Na, K, Cs, Ca<sup>2+</sup>/<sub>2</sub>, N[(C<sub>1</sub>-C<sub>4</sub>)-Alkyl]4, such as N(CH<sub>3</sub>)<sub>4</sub>, N(C<sub>2</sub>H<sub>5</sub>)<sub>4</sub>;  
 15 R<sup>3</sup> is (C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>6</sub>)-alkenyl, (C<sub>3</sub>-C<sub>6</sub>)-alkynyl, (C<sub>1</sub>-C<sub>8</sub>)-alkoxy, (C<sub>3</sub>-C<sub>6</sub>)-alkenyloxy, (C<sub>3</sub>-C<sub>6</sub>)-alkynyoxy, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl-(C<sub>1</sub>-C<sub>6</sub>)-alkyl, O-CH<sub>2</sub>-(C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, where the last nine groups mentioned are unsubstituted or substituted by one or more R<sup>5</sup> radicals, or is aryl, heterocyclyl, aryloxy, heterocyclyloxy, -CH<sub>2</sub>-Aryl, -O-CH<sub>2</sub>-aryl, -CH<sub>2</sub>-heterocyclyl, -O-CH<sub>2</sub>-heterocyclyl, where the last eight groups mentioned are unsubstituted or substituted by one or more R<sup>6</sup> radicals;  
 20 R<sup>4</sup> is (C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>6</sub>)-alkenyl, (C<sub>3</sub>-C<sub>6</sub>)-alkynyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl-(C<sub>1</sub>-C<sub>6</sub>), (C<sub>1</sub>-C<sub>6</sub>)-alkyl, where the last five groups mentioned are unsubstituted or substituted by one or more R<sup>5</sup> radicals,

or is aryl, heterocycll, -CH<sub>2</sub>-aryl, -CH<sub>2</sub>-heterocycll, where the last four groups mentioned are unsubstituted or substituted by one or more R<sup>6</sup> radicals;

R<sup>5</sup> is halogen, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy or (C<sub>1</sub>-C<sub>6</sub>)-haloalkoxy;

5 R<sup>6</sup> is R<sup>5</sup>, (C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>1</sub>-C<sub>6</sub>)-haloalkyl;

m is 0;

n is 0, 1 or 2.

3. The process as claimed in claim 1 or 2, where the symbols in the formula (III) have the following meanings:

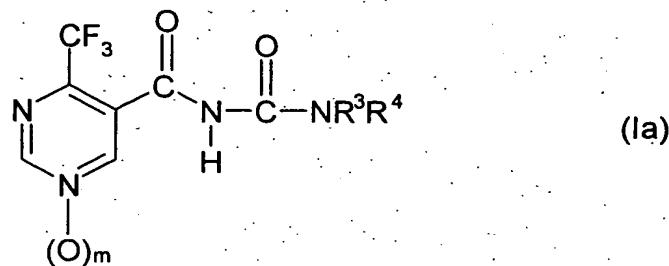
X is O-R<sup>7</sup> and

R<sup>7</sup> is unsubstituted or mono- or polyhalo, preferably F and/or Cl, -substituted (C<sub>1</sub>-C<sub>6</sub>)-alkyl or (C<sub>3</sub>-C<sub>6</sub>)-alkenyl, phenyl or benzyl.

15 4. The process as claimed in one or more of claims 1 to 3, where the molar ratio of amide of the formula (II) to compound (III) is 1:1 - 1.1.

5. The process as claimed in one or more of claims 1 to 4, where from 1 to 1.1 equivalents (based on the amide of the formula (II)) of a base from the group of 20 the hydroxides and (C<sub>1</sub>-C<sub>4</sub>)-alcoholates of the alkali metal and alkaline earth metals, alkyllithium compounds, metal hydrides, carbonates and acetates of the alkali metals and alkaline earth metal, tertiary amines having C<sub>1</sub>-C<sub>4</sub>-alkyl radicals and sterically hindered nitrogen bases are employed.

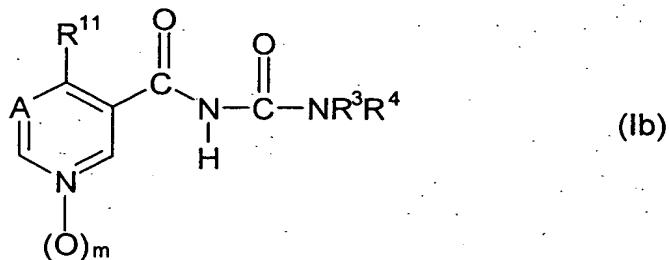
25 6. A compound of the formula (Ia),



where

R<sup>3</sup>, R<sup>4</sup> and m have the meanings indicated in claim 1 for formula (I).

5 7. A compound of the formula (Ib),



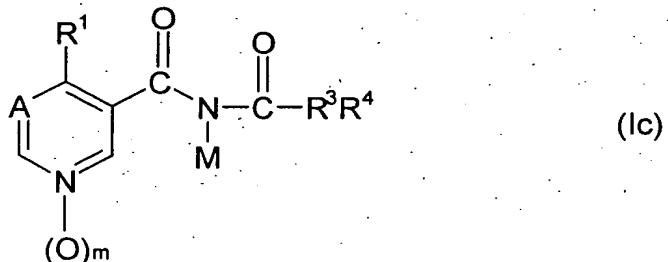
where

R<sup>11</sup> is (C<sub>1</sub>-C<sub>4</sub>)-haloalkyl with the exception of CF<sub>3</sub>; and

A, R<sup>3</sup>, R<sup>4</sup>, m have the meanings indicated in claim 1 for formula (I).

10

8. A compound of the formula (Ic),



in which

M is an organic or inorganic cation; and

15 A, R<sup>1</sup>, R<sup>3</sup>, R<sup>4</sup> and m have the meanings indicated in claim 1 for formula (I).

9. A composition for controlling harmful arthropods and helminths, comprising an

effective amount of at least one compound of the formula (Ia), (Ib) or (Ic) as claimed in claim 6, 7 or 8, together with additives or auxiliaries customary for these applications.

5 10. The composition as claimed in claim 9, comprising at least one further arthropodicidal and/or helminthicidal active compound.

11. The use of a compound as claimed in any of claims 6 to 8 or of a composition as claimed in claim 9 or 10 for controlling harmful arthropods and/or helminths.

10 12. A method for controlling harmful arthropods and/or helminths, where the pests are brought directly or indirectly into contact with a compound as claimed in any of claims 6 to 8 or with a composition as claimed in claim 9 or 10.

15 13. Seed material coated with or comprising an arthropodicidally and/or helminthidically effective amount of a compound as claimed in any of claims 6 to 8 or of a composition as claimed in claim 9 or 10.

20 14. The use of a compound as claimed in any of claims 6 to 8 for producing a veterinary medicinal product.